UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/740,091	12/18/2000	Marc-David Cohen	343355600017	5305

7590   10/01/2004

John V. Biernacki
Jones Day, Reavis & Pogue
North Point
901 Lakeside Avenue
Cleveland, OH 44114

EXAMINER
HECK, MICHAEL C

ART UNIT	PAPER NUMBER
3623	

DATE MAILED: 10/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	09/740,091	COHEN ET AL.
	Examiner	Art Unit
	Michael C. Heck	3623

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 December 2000*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-32* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-32* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *18 December 2000* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

1.   The following is a First Office Action in response to the application filed 18

December 2000. Claims 1-32 are pending in this application and have been examined

on the merits as discussed below.

Drawings

2.   The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5)

because they include the following reference character(s) not mentioned in the

description: 40. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or

amendment to the specification to add the reference character(s) in the description in

compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid

abandonment of the application. Any amended replacement drawing sheet should

include all of the figures appearing on the immediate prior version of the sheet, even if

only one figure is being amended. The replacement sheet(s) should be labeled

"Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct

any portion of the drawing figures. If the examiner does not accept the changes, the

applicant will be notified and informed of any required corrective action in the next Office

action. The objection to the drawings will not be held in abeyance.

Claim Objections

3.   Claim 31 is objected to because of the following informalities: shows

dependency to method claim 1, however, the dependency is to the system, which is

dependent claim 17. For examination purposes the examiner has interpreted the

dependency of claim 31 to be claim 17. The examiner also notes that claim 16,

dependent to claim 1, says the same thing as claim 31 except it is a methods claim.

Claim Rejections - 35 USC § 101

4.   35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of
> matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the
> conditions and requirements of this title.

Claims 1-16 are rejected under 35 U.S.C. 101 because the claimed invention is

directed to non-statutory subject matter.

The basis of this rejection is set forth in a two-prong test of:

(1) whether the invention is within the technological arts; and

(2) whether the invention produces a useful, concrete, and tangible result.

For a claimed invention to be statutory, the claimed invention must be within the

technological arts. Mere ideas in the abstract (i.e., abstract idea, law of nature, natural

phenomena) that do not apply, involve, use, or advance the technological arts fail to

promote the "progress of science and the useful arts" (i.e., the physical sciences as

opposed to social sciences, for example) and therefore are found to be non-statutory

subject matter. For the process claim to pass muster, the recited process must

somehow apply, involve, use, or advance the technological arts. In the present case,

claim 1 only recites an abstract idea. As to **claim 1**, the recited steps of retrieving

cross-selling relationships that associate purchases of a first set of items with purchases

of a second set of items; said cross-selling relationships being associated with a cross-

selling statistic, wherein the cross-selling statistic is indicative of potential for the purchase of the second set of items based upon the purchase of the first set of items; and determining a cross-selling opportunities metric that solves the business issue, wherein the cross-selling opportunities metric is determined for at least one cross-selling relationship by at least substantially optimizing an objective function with respect to constraints and to the cross-selling statistic, wherein at least one of the constraints is based upon the business issue does not apply, involve, use, or advance the technological arts since all of the recited steps can be performed in the mind of the user or by use of a pencil and paper.   The method only constitutes an idea to solve a business issue related to cross-selling opportunities, therefore, is deemed to be directed to non-statutory subject matter.

As to technological arts recited in the preamble, mere recitation in the preamble (i.e., intended or field of use) or mere implications of employing a machine or article of manufacture to perform some or all of the recited steps does not confer statutory subject matter to an otherwise abstract idea unless there is positive recitation in the claim as a whole to breathe life and meaning into the preamble.   In the present case, none of the recited steps are directed to anything in the technological arts as explained above. Looking at the claim as a whole, nothing in the body of the claim recites any structure or functionality to suggest that a computer performs the recited steps. Therefore, the preamble is taken to merely recite a field of use.

Additionally, for a claimed invention to be statutory, the claimed invention must produce a useful, concrete, and tangible result.   In the present case, the claimed

invention solves a business issue (i.e., repeatable) related to cross-selling opportunities

(i.e., useful and tangible).

Looking at the claims as a whole, nothing in the body of the claims recite any

structure or functionality to suggest that a computer performs a task.

Although the recited process produces a useful, concrete, and tangible result,

since the claimed invention, as a whole, is not within the technological arts as explained

above, the same rejection as stated above for claim 1 applies to **claims 2-16**.

Claim Rejections - 35 USC § 102

5.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed
> publication in this or a foreign country, before the invention thereof by the applicant for a patent.

6.   **Claims 1-32** are rejected under 35 U.S.C. 102(a) as being anticipated by Data

Mining News (Data Mining News, Looking Past Automation, MarketSwitch Focuses on

Optimization of Marketing Campaigns, Data Mining News, 10 May 1999 [GOOGLE]).

Data Mining News discloses a cross-selling optimizer comprising:

-   **[Claim 1]** retrieving cross-selling relationships that associate purchases of a
    first set of items with purchases of a second set of items (paragraph 9 and 12,
    Data Mining News teach the cross-selling optimizer calculates the next best
    product to pitch to each customer. The solution starts by selecting randomly
    a statistically significant sample of a prospect list.);

-   said cross-selling relationships being associated with a cross-selling statistic,
    wherein the cross-selling statistic is indicative of potential for the purchase of
    the second set of items based upon the purchase of the first set of items
    (paragraph 10, Data Mining News teach each promotion has an eligibility

condition, a response model, and a profitability model associated with it. The examiner interprets the response model to be a cross-selling statistic.); and

- determining a cross-selling opportunities metric that solves the business issue, wherein the cross-selling opportunities metric is determined for at least one cross-selling relationship by at least substantially optimizing an objective function with respect to constraints and to the cross-selling statistic, wherein at least one of the constraints is based upon the business issue (paragraph 10, Data Mining News teach there is a constraint on a maximum number of offers that go to any customer and, in addition, economic requirements like minimal number of sales, minimal NPV (Net Present Value) per customer, maximal budget, etc. The goal is to determine what offers to send to what customers to maximize total NPV of the campaign, satisfying all the above constraints and conditions. The solution suggested by MarketSwitch calculates the optimal solicitation matrix in one pass through the full prospect list.).

- **[Claim 2]** the objective function is solved for resource allocation related to the purchase of the second set of items using linear programming optimization (Paragraph 11 and 12, Data Mining News teach the problem in its original form is a problem of discrete linear programming. However, due to a huge number of dimensions, application of classical methods of discrete linear programming is not feasible. The solution calculating response and profitability matrixes for selected prospects by reducing the original linear multidimensional problem to the non-linear problem with the feasible number of dimensions, solving the non-linear problem for the selected sample numerically with the desired tolerance using an iterative algorithm, and calculating the optimal solicitation matrix.).

- **[Claim 3]** the objective function is solved for personnel effort resource allocation related to the purchase of the second set of items using linear programming optimization (paragraph 4 and 12, Data Mining News teach MarketSwitch calls its approach "payback marketing™". It looks to predict customer behavior, optimize economic payback and increase campaign productivity and capacity. The problem in its original form is a problem of discrete linear programming. However, due to a huge number of dimensions, application of classical methods of discrete linear programming is not feasible. The solution calculating response and profitability matrixes for selected prospects by reducing the original linear multidimensional problem to the non-linear problem with the feasible number of dimensions, solving the non-linear problem for the selected sample numerically with the desired tolerance using an iterative algorithm, and calculating the optimal solicitation matrix.).

- **[Claim 4]** one of the constraints is based upon target effort for an item (paragraph 10, Data Mining News teach there is a constraint on a maximum number of offers that go to any customer).

- **[Claim 5]** one of the constraints is directed to size of markets involving the first and second sets of items (paragraph 10, Data Mining News teach there is a constraint on a maximum number of offers that go to any customer and, in addition, economic requirements like minimal number of sales, minimal NPV (Net Present Value) per customer, maximal budget, etc.).

- **[Claim 6]** one of the constraints is directed to size of markets involving the first and second sets of items such that resource allocation is biased towards markets that are larger than other markets (paragraph 10, Data Mining News teach there is a constraint on a maximum number of offers that go to any customer and, in addition, economic requirements like minimal number of sales, minimal NPV (Net Present Value) per customer, maximal budget, etc. The goal is to determine what offers to send to what customers to maximize total NPV of the campaign, satisfying all the above constraints and conditions.).

- **[Claim 7]** one of the constraints constrains the objective function to generate resource allocations that are substantially equal for all items whose resource allocations are determined by the optimization function to be greater than zero (paragraph 6, Data Mining News teaches the most important of the algorithms is the Integral Criterion, which allows users to pinpoint the working interval the want optimized.).

- **[Claim 8]** one of the constraints constrains the objective function to maximize the return on equity (paragraph 10, Data Mining News teach the goal is to determine what offers to send to what customers to maximize total NPV of the campaign, satisfying all the above constraints and conditions.).

- **[Claim 9]** the cross-selling opportunities metric includes an effort cross-selling opportunities metric which solves the business issue, wherein the business issue is directed to the resource allocation that maximizes return on investment related to the purchasing of the second set of items (paragraph 9 and 10, Data Mining News teach the cross-selling optimizer calculates the next best product to pitch to each customer. Each promotion has an eligibility condition, a response model, and a profitability model associated with it. The goal is to determine what offers to send to what customers to maximize total NPV of the campaign, satisfying all the above constraints and conditions.).

- **[Claim 10]** the cross-selling relationships include association rules, wherein the association rules have left-hand-side items and right-hand-side items

(paragraph 8, Data Mining News teach what-if scenarios that can quickly be generated with the software. The system will calculate outcomes and allow a simple comparison between the different possibilities.).

- **[Claim 11]** the cross-selling statistic is a lift cross-selling statistic (paragraph 6, Data Mining News teach targeting optimizer also benefits from the fact that it solves directly for lift.).

- **[Claim 12]** the lift cross-selling statistic is ratio of the probability of having the right-hand-side items given that a customer has the left-hand-side items, over the probability that the customer has the right-hand-side items. (paragraph 6, Data Mining News teach optimizing strictly, mathematically, for lift.).

- **[Claim 13]** the cross-selling statistic further includes an expected confidence cross-selling statistic that indicates the frequency with which the right-hand-side items occurs in the overall population of the first and second set of items (paragraph 16, Net Mining News teach the solution calculates the vector of parameters of the adjusted NPV functions, which is a function of the vector of parameters for each customer to respond to each promotion and the vectors of profitability for each customer for each promotion.).

- **[Claim 14]** the first and second set of items includes products to be purchased by customers (paragraph 5, Data Mining News teach MarketSwitch's Targeting Optimizer calculates the subset of an available mailing list that will produce the best response or profitability. The examiner interprets profitability is achieved by selling products and/or services.).

- **[Claim 15]** the first and second set of items include services to be purchased by customers (paragraph 5, Data Mining News teach MarketSwitch's Targeting Optimizer calculates the subset of an available mailing list that will produce the best response or profitability. The examiner interprets profitability is achieved by selling products and/or services.).

- **[Claim 16]** the cross-selling relationships and cross-selling statistic are generated from a data miner based upon historical data on sales related to the first and second sets of items (paragraph 1, Data Mining News teach layering a set of proprietary techniques over generic data mining algorithms, MarketSwitch performs multidimensional optimization.).

Claims 17-32 substantially recites the same limitations as that of claims 1-16 with the distinction of the recited method being a system. Hence the same rejection for claims 1-16 as applied above applies to claims 17-32.

Conclusion

7.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Galperin et al. (U.S. Patent 6,640,215) disclose an integral criterion for model training and method of application to targeted marketing optimization.

- Porter-Kuchay (Porter-Kuchay. Multidimensional Marketing. Target Marketing, January 2000 [DIALOG: file 13]) disclose enterprise-wide marketing optimization (EMO) that helps firms optimize their cross selling of products to their customers.   Optimization technology takes marketing automation software and CRM to a new level by enabling businesses to match the right product with the right customer before committing marketing resources.

- Spiegelman (Spiegelman, Optimizers Assist in Specialized Marketing Efforts, Computer Reseller News, 22 November 1999 [PROQUEST]) discloses MarketSwitch software that uses data-mining technology and optimization algorithms.   Cross-Selling Optimizer, released in April, lets users perform multidimensional analysis to determine the best cross-selling opportunities.

- Galperin et al. (W.O. 01/11522 A2) disclose a method for optimizing net present value of a cross-selling marketing campaign.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael C. Heck whose telephone number is (703) 305-

8215. The examiner can normally be reached Monday thru Friday between the hours of

8:00am - 4:30pm. If attempts to reach the examiner by telephone are unsuccessful, the

examiner's supervisor, Tariq R. Hafiz can be reached on (703) 305-9643. Any inquiry of

a general nature or relating to the status of this application or proceeding should be

directed to the receptionist whose telephone number is (703) 308-1113.

Any response to this action should be mailed to:

Director of the United States Patent and Trademark Office
P.O. Box 1450

Alexandria, Virginia 22313-1450

Or faxed to:

(703) 872-9306   [Official communications; including After Final
                           communications labeled "**Box AF**"]

(703) 746-9419   [Informal/Draft communication, labeled "**PROPOSED**" or
                           "**DRAFT**"]

Hand delivered responses should be brought to 220 South 20th Street, Crystal

Plaza Two, Lobby, Room 1B03, Arlington, Virginia 22202.

mch
27 September 2004

TARIQ R. HAFIZ
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3600